

REMARKS

Claim Objections 37 C.F.R. § 1.75 (c)

Claims 19 and 24

The Examiner has objected to claims 19 and 24 under 37 C.F.R. § 1.75 (c) as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicants have cancelled claims 19 and 24 without prejudice.

Claim Rejections 35 U.S.C. § 103 (a)

Claims 1, 4-12, 18-33

The Examiner has rejected claims 1, 4-12, 18-33 under 35 U.S.C. §103 (a) as being unpatentable over Casey, Jr. et al. (US 6,042,738) as demonstrated by Baum, Aaron Wolf et al. (US 5,684,360 A) in view of Parker, Norman W. et al. (US 4,818,872 A) and Fuji, Eiji et al. (US 5,876,504 A).

Applicants respectfully disagree with the Examiner. Applicants have amended independent claims 1, 9, 25, and 31. Applicants have also cancelled claims 19 and 24 without prejudice.

Independent claim 1, as amended, of Applicants' claimed invention, claims an apparatus (400) comprising: a holder (420) to mount a substrate (410); a stage

(430) disposed below said holder; an imaging system (440) disposed at a first height vertically above an opaque defect (405) on said substrate; a gas delivery system (450) comprising a nozzle with a diameter of 100-300 microns disposed at a second height over said opaque defect at a tilt angle of 45-70 degrees from vertical, a distance of 50-150 microns, and an angular dispersion of 5-25 degrees to dispense a reactant gas and a carrier gas from a reservoir wherein said second height is lower than said first height; and an electron scanning delivery system (460) disposed at said second height over said opaque defect at said tilt angle and said distance to direct electrons in a range of 0.3-3.0 keV towards said reactant gas wherein said gas delivery system and said electron scanning delivery system are disposed on opposite sides of said imaging system. See Figure 4. Also, see pages 10-12 of the specification.

Independent claim 25, as amended, of Applicants' claimed invention, claims an apparatus (400) for repairing an opaque defect (405) on a mask (410) without ion implantation or knock-on of atoms comprising: a chamber (470); a stage (430) disposed in said chamber; a holder (420) disposed over said stage; a mask disposed over said holder; an opaque defect disposed on said mask; an imaging system (440) disposed at a first height directly above said opaque defect; a gas delivery system (450) disposed at a second height and a tilt angle over said opaque defect wherein said second height is lower than said first height; an electron scanning delivery system (460) disposed at said second height and said tilt angle over said opaque defect wherein said gas delivery system and said electron scanning delivery system are disposed on opposite sides of said imaging system; electrons disposed over said opaque defect, wherein said electrons interact with a gas that is adsorbed and dissociated on said opaque defect without damaging underlying layers; and a pumping system disposed in said chamber to evacuate volatile byproducts. See Figure 4. Also, see pages 10-12 of the specification.

Independent claim 31, as amended, of Applicants' claimed invention, claims a mask repair system (400) comprising: a chamber (470), said chamber to hold a mask (410); an imaging system (440) disposed in said chamber at a first height to locate an

opaque defect (405) on said mask; a gas delivery system (450) disposed in said chamber at a second height and a tilt angle to dispense one or more gases from reservoirs through nozzles towards said opaque defect wherein said second height is lower than said first height; and an electron scanning delivery system (460) disposed in said chamber at said second height and said tilt angle to provide a highly focused beam of electrons with an electron beam size smaller than 30% of smallest critical defect to interact with said one or more gases adsorbed and dissociated over said opaque defect wherein said gas delivery system and said electron scanning delivery system are disposed on opposite sides of said imaging system. See Figure 4. Also, see pages 10-12 of the specification.

In contrast, combination of the apparatus taught by the four references cited by the Examiner, even if possible, would still not produce the apparatus of Applicants' claimed invention, as claimed in independent claims 1, 25, or 31.

Consequently, Applicants' claimed invention, as claimed in independent claims 1, 25, or 31, would not have been obvious to one of ordinary skill in the art of fabricating semiconductors at the time the invention was made.

Claims 4-12, 18, 20-23 are dependent on claim 1.

Claims 26-30 are dependent on claim 25.

Claims 32-33 are dependent on claim 31.

Since combination of the apparatus taught by the four cited references, even if possible, would also still not produce the apparatus as claimed in independent claims 1, 25, or 31 of Applicants' claimed invention, the apparatus claimed in dependent claims 4-12, 18, 20-23, 26-30, and 32-33 of Applicants' claimed invention would also not have been obvious to one of ordinary skill in the art of semiconductors at the time the invention was made.

In view of the foregoing, Applicants respectfully request the Examiner to withdraw the rejections to pending claims 1, 4-12, 18, 20-23, and 25-33 under 35 U.S.C. §103 (a).

Conclusion

Applicants believe that all claims pending, including claims 1, 4-12, 18, 20-23, and 25-33, are now in condition for allowance so such action is earnestly solicited at the earliest possible date.

Pursuant to 37 C.F.R. 1.136 (a) (3), Applicant hereby requests and authorizes the U.S. Patent and Trademark Office to treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time.

Should there be any additional charge or fee, including a Request for Continued Examination, an extension of time fee, or other fees under 37 C.F.R. 1.16 and 1.17, please charge Deposit Account No. 50-0221.

If a telephone interview would in any way expedite the prosecution of this application, the Examiner is invited to contact the undersigned at (408) 653-7897.

Respectfully submitted,
INTEL CORPORATION

Dated: ____July 22____, 2008

_____/George Chen/_____
George Chen
Reg. No. 50,807

INTEL CORPORATION
c/o INTELLEVATE, LLC
P. O. Box 52050
Minneapolis, MN 55402

(408) 653-7897